



PORTSMOUTH INFORMATION RELEASE APPROVAL REQUEST

I. Document / Information Description

(To be filled out by Requestor)

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Document Title or Identification: X-770 Building Demolition - Lessons Learned
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Requestor: Amanda Mayo Ext. 2669 Date: 5-19-08
Legible Signature or Print Name & Signature

II. Patent, Classification and Protected Information Review

(To be completed by the PORTS Classification Office)

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☐ Document is Classified
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☐ Contains Unclassified Controlled Nuclear Information (UCNI)
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HH Thomas 5/20/08
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Send to OSTI? ☐ Yes ☒ No

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LPP MANAGEMENT ASSESSMENT REPORT

Assessment Number: LPP-MA-07-011	Assessors: David Del Vecchio	Date Performed: 4/11/07 thru 4/26/07
Assessment Title: Building X-770 Demolition Lessons Learned		
Location (place where assessment was performed): X-1000 and X-770	Assessed Organization(s): Projects	
Scope of Assessment: To identify the lessons learned associated with preparing for and demolishing X-770.		
Basis (provide full reference to documents where requirements, specifications, other criteria forming basis characteristics of assessment were identified): <ul style="list-style-type: none">• Integrated Safety Management System (ISMS) principle 5, "Feedback"• Integrated Work Control Program (IWCP) "Post-Job Review"		
Lines of Inquiry (specify checklist, guidance cards, basis document excerpts, other basis characteristics tracking tools used and attach): See Attachment 1		
Personnel Contacted (list who was interviewed and consulted during the assessment and their title and organization): <ul style="list-style-type: none">• Val Tinsley (Superintendent-Projects)• Mike Basham (Superintendent-Projects)• Noah Lawson (Representative - Safety)• Kathy Hagglund (Planner-Work Control)• Paul Kreitz (Project Manager)		
Results Summary: <p>This assessment consisted of identifying lessons learned associated with the preparation for and actual demolition of building X-770. The assessment consisted of the following: review of multiple work packages, AHA's, RWP's; walk-down of physical facility and grounds; interviews of project personnel; and round-table discussions with personnel involved in the project.</p> <p>The assessment results are provided in the attached checklist. While there were no findings, observations, or proficiencies as a result of this assessment, a number of lessons learned were identified. These lessons learned will be evaluated by management to determine where process improvements can be made.</p>		
Reviewing Manager:	Date of Review:	

ATTACHMENT 1
MANAGEMENT ASSESSMENT LPP-MA-07-011 CHECKLIST
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Item	Characteristic	Remarks
1.	Were there any "Lessons Learned" from the demolition of building X-770?	<p>A number of lessons learned were identified and are outlined below:</p> <ul style="list-style-type: none"> • Ensure that changes in facility conditions are thoroughly communicated to all affected parties (e.g. beryllium de-posting not well communicated nor universally understood) • Air-purging of process gas systems does not guarantee total removal and remediation of hold up material • Maintain a questioning attitude regardless of indicators (e.g. fluorine tank marked "Empty" but did contain fluorine, NDA values indicate "Minimal Holdup", but significant quantities found, etc) • Perform characterization as the first step in the project, with leeway to re-baseline as necessary, based on discoveries • Validate "process knowledge" information with hard data • Out-dated characterization information must be repeated or validated • When de-leasing areas, ensure adequate real-estate (grounds) around the facility are included, as well as roads and utilities. • When isolating utilities, agree to comply with utility owners isolation requirements, but do not actively involve utility owner in the isolations • Ensure that pre-existing conditions and facility status are understood before initiating work (pre-job walk-downs will address this issue) • A work package is not "Ready-To-Work" until all associated paperwork (AHA, RWP, USQD, etc.) is approved and all supplies, tools and equipment are available and on site • Establish accounts (credit card or "open" account) with local supply companies for non-QA procurements • More thorough reviews, walk-downs, and understanding of waste packaging plans, procedures and techniques are needed at the front end of the project: <ul style="list-style-type: none"> - based on characteristics of demolition debris and structural soundness of waste container, make determination if "lining" of containers is necessary to provide additional structural integrity and reduce/eliminate container breeches - specify upfront the requirements for when and how container repairs are made in case a breach occurs - extreme care (operator finesse) is needed when loading waste containers with sharp, heavy, metal debris - compacting of debris with shear head or bucket inside of waste container requires extreme care to avoid causing a breach of container - utilize experienced estimators when determining demolition waste volumes • Create a "general" AHA that contains all the standard hazards. Require this AHA to be reviewed semi-annually by all personnel • Develop "Specific" AHA's that <u>only</u> contain the critical hazards associated with a particular job. This results in significantly smaller, job-specific AHA's, faster AHA development, and does not dilute the specific, and critical hazards with "standard" hazards • Where practicable, utilize portable chain link fence boundaries versus stanchions and tape. <p>(Continued on next page.)</p>

ATTACHMENT 1
MANAGEMENT ASSESSMENT LPP-MA-07-011 CHECKLIST

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Item	Characteristic	Remarks
		<ul style="list-style-type: none"> • If volume and extent of contamination (radiological, RCRA, TSCA, ...) is significant, evaluate performing a "dirty" demolition to avoid excessive surgical strip-out to achieve "clean" demolition requirements • When shipping waste containers to disposal sites, take appropriate measures to preclude water (rain, sleet, snow) infiltration during transit (tarp load; caulk and seal all doors, lids, etc.; face container doors rearward) • When escorts are required, establish an escort security plan that allows greater or unlimited escort-to-un-cleared ratio's by stationing escorts on the four (4) corners of the area, with a fifth available for relief • In the absence of up-to-date drawings, Engineering presence is required during high-risk activities to facilitate field direction based on discovered conditions • Fully understand the desired/required end-state prior to beginning the project. Otherwise, significant time will be spent writing and re-writing work packages to deal with changing direction • Believe your data unless it can be proven to be incorrect. (Stake-holders "guaranteed" that there were classified converters in the building, even though a letter from security documenting that an assessment had been performed and the "converters" were confirmed to be coolers and not classified. Resolving that issue took significant time and caused significant delays.) • Put more effort into identifying and obtaining input from <u>strong</u> technical resources to gain a better understanding of the facility and processes. Significant time was spent validating (or invalidating) information that was offered by personnel with a limited knowledge of the system/facility. • Understand the necessity of characterization data, even when the answers might be difficult to deal with. Significant delays were encountered because "we" were afraid to go looking for PCBs because "we" were afraid of what we might find. The project couldn't proceed effectively until the PCB question was answered. • Assign a task manager (or a management team for large projects) at the beginning of the project so that the project is well thought out and directed from the start. Ensure that the task manager has the experience and expertise for the scope of the project.

Lessons Learned Discussion
Meeting Minutes
5/18/07

Attendees: *Jud Lilly, Dave Kozlowski, Cid Voth, Paul Kreitz, Bill Franz, Dave Del Vecchio, Marc S. Hill*

The attendees (review team) reviewed and discussed lessons learned associated with preparing for and demolishing X-770 Mechanical Testing Facility (X-770) at the Portsmouth Gaseous Diffusion Plant. The lessons learned were assessed by the attendees to determine where improvements can be made when preparing for and conducting forthcoming removal action/demolition projects.

The lessons learned and discussion pertinent to each are summarized below:

The review team discussed how thoroughly communicating project related information to all affected parties is most important. Discussions pursuant to changing conditions and how to ensure that changes in facility conditions are communicated and universally understood. Issues pertaining to why de-posting of beryllium designated areas was not being communicated effectively to management staff and crew members were discussed in detail.

Additional discussion related to beryllium ensued. The X-770 demolition project management staff and work force were concerned over the potential presence of beryllium. Characterization data was not sufficient to determine accurately the levels of beryllium which may be present. The Contractor suggested that bulk sampling for beryllium versus beryllium point sampling would be most successful in confirming the presence of beryllium. The Project Manager for the X-770 demolition project (Project Manager) suggested to the review team that bulk sampling for beryllium would prove to be the best sampling methodology to confirm the presence of beryllium. The point sampling methodology was deemed not as accurate. The Contractor also suggested that an independent/outside contractor be utilized for confirmation sampling to provide additional judgment for the project team.

The review team discussed characterization efforts, ensuring a consistent and systematic approach to characterizing hazards, and validity of previously obtained characterization data. The Project Manager provided detailed discussion on the following lessons learned:

- Perform characterization as the first step in the project, with leeway to re-baseline as necessary, based on discoveries
- Validate "process knowledge" information with hard data
- Out-dated characterization information must be repeated or validated

- Ensure that pre-existing conditions and facility status are understood before initiating work (pre-job walk-downs will address this issue)
- Understand the necessity of characterization data, even when the answers might be difficult to deal with. Significant delays were encountered because “we” were afraid to go looking for PCBs because “we” were afraid of what we might find. The project couldn’t proceed effectively until the PCB question was answered.

The review team further discussed the validity of pre-determined characterization data. The Project Manager explained that there were instances when the previously obtained characterization data was incorrect and not sufficient. The Project Manager further suggested that a very important lesson learned from “taking characterization data at face value with out additional investigation” could increase project costs and impact schedule. An example of the lesson learned is discussed below:

- Believe your data unless it can be proven to be incorrect. (Stake-holders “guaranteed” that there were classified converters in the building, even though a letter from security documenting that an assessment had been performed and the “converters” were confirmed to be coolers and not classified. Resolve issues to eliminate unwarranted delays.) Additional lessons learned discussed were as follows:
- Air-purging of process gas systems does not guarantee total removal and remediation of hold up material
- Maintain a questioning attitude regardless of indicators (e.g. fluorine tank marked “Empty” but did contain fluorine, NDA values indicate “Minimal Holdup”, but significant quantities found, etc)
- In the absence of up-to-date drawings, an Engineering presence is required during high-risk activities to facilitate field direction based on discovered conditions
- Put more effort into identifying and obtaining input from **strong** technical resources to gain a better understanding of the facility and processes. Significant time was spent validating (or invalidating) information that was offered by personnel with a limited knowledge of the system/facility

The review team thoroughly discussed area de-leasing and utility isolation issues that were imminent during the X-770 demolition project. The Project Manager suggested that area de-leasing and utility isolation process should be re-visited prior to preparing for and conducting forthcoming removal action/demolition projects. The area de-leasing impacted project schedules and caused major communication issues between the onsite organizations. The utility isolation issues impacted the overall project costs. The lessons learned derived from these issues were as follows:

- When de-leasing areas, ensure adequate real-estate (grounds) around the facility are included, as well as roads and utilities
- When isolating utilities, agree to comply with utility owner isolation requirements, but do not actively involve utility owner in the isolations

The review team discussed waste management issues. The Project Manager suggested that the waste management component of the X-770 demolition project was not appropriately addressed prior to initiation of the project. The Project Manager further suggested that the project waste management program, waste generation planning, and waste management design engineering was inadequate. The lessons learned for the waste management component of the project were most important.

- More thorough reviews, walk-downs, and understanding of waste packaging plans, procedures and techniques are needed at the front end of the project:
 - based on characteristics of demolition debris and structural soundness of waste container, make determination if "lining" of containers is necessary to provide additional structural integrity and reduce/eliminate container breeches
 - specify upfront the requirements for when and how container repairs are made in case a breach occurs
 - extreme care (operator finesse) is needed when loading waste containers with sharp, heavy, metal debris
 - compacting of debris with shear head or bucket inside of waste container requires extreme care to avoid causing a breach of container
 - utilize experienced estimators when determining demolition waste volumes
- When shipping waste containers to disposal sites, take appropriate measures to preclude water (rain, sleet, snow) infiltration during transit (tarp load; caulk and seal all doors, lids, etc.; face container doors rearward)

The review team discussed the following lessons learned pursuant to safety issues and Activity hazard Analysis documentation.

- Additional lessons learned A work package is not "Ready-To-Work" until all associated paperwork (AHA, RWP, USQD, etc.) is approved and all supplies, tools and equipment are available and on site
- Create a "general" AHA that contains all the standard hazards. Require this AHA to be reviewed semi-annually by all personnel

Develop "Specific" AHA's that only contain the critical hazards associated with a particular job. This results in significantly smaller, job-specific AHA's, faster AHA development, and does not dilute the specific, and critical hazards with "standard" hazards

The review team discussed the following lessons learned:

- Where practicable, utilize portable chain link fence boundaries versus stanchions and tape.

- When escorts are required, establish an escort security plan that allows greater or unlimited escort-to-un-cleared ratio's by stationing escorts on the four (4) corners of the area, with a fifth available for relief

In closing, the review team discussed the following lessons learned.

- Assign a task manager (or a management team for large projects) at the beginning of the project so that the project is well thought out and directed from the start. Ensure that the task manager has the experience and expertise for the scope of the project.
- Fully understand the desired/required end-state prior to beginning the project. Otherwise, significant time will be spent writing and re-writing work packages to deal with changing direction
- If volume and extent of contamination (radiological, RCRA, TSCA) is significant, evaluate performing a "dirty" demolition to avoid excessive surgical strip-out to achieve "clean" demolition requirements

The review team discussed briefly that security requirements, shared site issues, de-leasing, utility isolation, and must be addressed prior to preparing for and conducting forthcoming removal action/demolition projects. However the Project Manager suggested that shared site issues, de-leasing, and utility isolation severely impacted the schedule and costs for the X-770 demolition project.